Palmetto AVIATION

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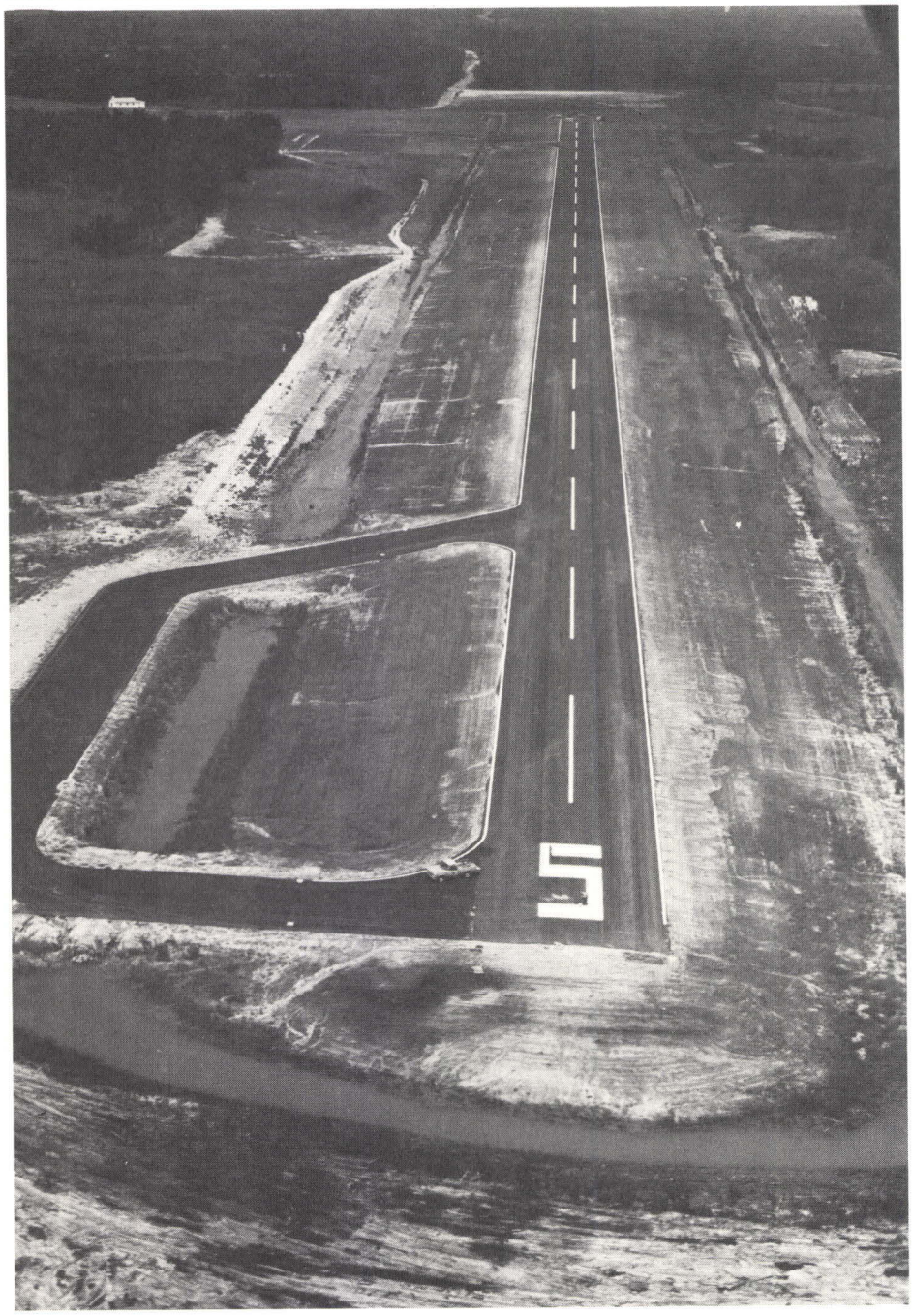


New Bamberg Airport

A new 3,600 foot paved runway is open in Bamberg County,
See article, P.2

Airports got $4 Million in fiscal '82

More than $4 million in federal funds was allocated for air carrier and general aviation airport improvements in South Carolina for the fiscal year which ended Sept. 30, 1982.

Three air carrier airports — Columbia, Charleston and the Greenville-Spartanburg jetport — will receive $2.6 million. Five GA airports, including two new fields, will get $1.5 million.

The money was allocated under the five-year airport/airway improvement law which was signed into law by President Reagan in early September. For 1982, the law authorizes $450 million to be spent for airport planning and improvements.

A new airport project to serve the Mount Pleasant area east of the Cooper River, will get $550,800 for land acquisition. The airport will be located about six miles north of the present Isle of Palms Airport.

In the Summerville area, $316,000 has been allocated to buy land for a new GA airport to replace J. E. Locklair Memorial, a 2,600 foot turf

continued on p. 3

FBO WANTED

The Spartanburg Downtown Memorial Aiport is soliciting proposals for a full service FBO until Dec. 30, 1982.

Interested persons should contact Paul Bjorkman, 500 Ammons Rd., Spartanburg, S.C. 29301. Phone (803) 596-3670.

PALMETTO AVIATION is an official publication of the South Carolina Aeronautics Commission. It is designed to inform members of the aviation community, and others interested in aviation, of local developments in aviation and aviation facilities and to keep readers abreast of national and international trends in aviation.

The Aeronautics Commission is a state agency created in 1935 by the S.C. General Assembly to foster and promote air commerce within the state.

Offices at Columbia Metropolitan Airport
Mailing Address
P.O. Drawer 1987
Columbia, S.C. 29202
Phone: 803 758-8037

Aircraft Registration, Insurance required by S.C. Law

BY HENRY M. BURWELL
Attorney-at-Law

If a person desires to base or operate an aircraft in South Carolina, wthin 30 days after entry into the state that aircraft must be properly registered and insured as required by the South Carolina Aeronautics Commission and the state law. There are certain exceptions for aircraft operated by commercial air carriers certificated by the Federal Aviation Administration or aircraft present in the state for repair or overhaul.

Registration with the Commission requires an annual filing with the payment of a modest fee and a certificate of proof of financial responsibility from an approved insurance carrier indicating the aircraft is covered by an appropriate liability insurance policy. The minimum acceptable liability coverage is $100,000 of combined single limit bodily injury and property damage, including passengers; or alternatively, $100,000 bodily injury for each non-passenger not to exceed $300,000 for non-passengers per occurrence and $100,000 property damage per occurrence (South Carolina Code Section 55-7-20).

In the event of a purchase or sale of an aircraft, an owner should carefully review any registration requirements at both the state and federal levels. For non-exempt aircraft, the Commission must be notified within 10 days after transfer of title. However, South Carolina expressly defers to the federal statutory scheme established for filing certain security interests (South Carolina Code Section 36-9-302). Owners and other persons claiming interests in aircraft are provided a national registry in Oklahoma City, Oklahoma maintained by the FAA pursuant to federal law. Compliance with the federal registry requirements is ordinarily necessary to vailidate those interests on the public record as enforceable against the claims of third parties (Federal Aviation Act of 1958 Section 503; Federal Aviation Regulations Sections 49.13, 49.17, 49.19). ✈

New Bamberg Airport open; Carlisle Field closed

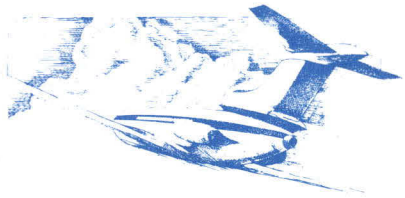
The new Bamberg County Airport is officially open. The 3,600 X 60 foot asphalt runway is located about three miles west of Bamberg, just south of U.S. 78, or about halfway between Bamberg and Denmark.

The $325,000 project included a 5,000 sq. foot ramp, a stub taxiway and a turnaround on the 5 end. The project was funded with a grant from the South Carolina Aeronautics Commission and a like amount in matching county funds.

The site preparation work was done by the S.C. National Guard. The Paving contractor was J. F. Cleckley and Co. of Orangeburg. Project engineers were Engineering Consultants Inc. of Florence. South Carolina Aeronautics Commission maintenance crews painted the 60 foot high numbers and runway striping.

Bamberg County Council is planning a terminal building, T-hangars and is looking for a fixed base operator to manage the airport.

Carlisle Field, shown on current state charts, east of Bamberg is officially closed. All traffic should use the new airport. However, pilots should be aware that there are no navids, radio or beacon on the field. ✈



New ADAP Law promises inceased funding for airport projects through 1982

The long awaited Airport and Airway Trust Fund law passed by Congress and signed by the president in early September, will provide increasing amounts of federal grants-in aid for airports each year through fiscal 1987.

The new law authorizes the following ADAP funding levels:

FY 83	600 million
FY 84	793.4 million
FY 85	912 million
FY 86	1,017 million
FY 87	1,017.2 million

Unless Congress reduces the authorization, airports can now look foward to a steady growth period during the next five years.

The new funding levels didn't come free of course. Pilots and others who use the airports and airways are going to help pay for those improvements through increased taxes. The tax on general aviation avgas was increased to 12 cents a gallon and on jet fuel to 14 cents a gallon. Also, the commercial airline ticket tax was increased to eight percent. User taxes now cover about 75 percent of the total projected expenditures from the fund through 1987.

The legislation, while providing a good measure of funding for airports, is still not the perfect bill airport sponsors had hoped. Much of the taxes collected will still go to fund FAA operations and maintenance and for installation of new air traffic hardware. About 19.3 billion will be spent on that by 1987.

Sixth District Congressman W. Henson Moore, of Louisiana, fears the new law may have a punitive effect on the aviation industry.

In a letter to David L. Blackshear, assistant Secretary of the Louisiana Office of Aviation and Public Transportation, Henson wrote:

"I believe it (the legislation) will add approximately $5 billion in unobligated funds to the Airport Trust Fund by the time the legislation expires in 1987.

"This will be $5 billion which the aviation commmunity will be paying for safety-related improvements which will not be spent on those improvements. To see such a meaure passed just weeks after the Pan American Airways crash in New Orleans is disheartening to say the least."

Although the bill is not entirely what the airport and NASAO representatives wanted, it does offer a fairly good level of funding during the next five years.

Of the total amount available each year (see table) half is allocated to the 295 largest commercial airports. Those enplaning more than 31,000 passengers annually and which cumulatively explane some 99.6 percent of all airline passengers. The remainder is allocated as follows:

discretionary	13.5 percent
GA airports	12 percent
reliever airports	10 percent
noise planning	8 percent
small carrier fields	5.5 percent
systems plans	1 percent

As can be seen from the breakdown 12 percent of the money will be allocated for general aviation improvements on the basis of state area and population. For Fiscal '83, South Carolina's share will be $785,178, according to the FAA Airports District Office in Atlanta.

The state should also receive some discretionary funding — money allocated by the FAA for top priority safety improvements — but the amount won't be known until later this year or next year when the Office of Management and Budget authorizes 1983 spending.

Discretionary funds can sometimes exceed the state apportionment share. in fiscal 82, for example, South Carolina recived more than $1.5 million for GA development. The state apportionment amount came to only $588,883. The rest was discretionary funds.

Air Carrier airports will have more than $5 million available during 1983. Charleston will receive $1.11 million toward its new terminal construction; Greenville-Spartanburg jetport will have $2.18 million available (including $1.3 million carry over from past two years); Columbia Metropolitan will receive $1.04 million and Myrtle Beach will have $.73 million available, including a carryover of $.25 million from the past two years. ✈

'82 Projects

continued from p. 1

strip that can't easily be expanded. The new airport will be about four miles north of Locklair.

Other projects funded in fiscal 1982 were $429,000 to reconstruct and strengthen the runway 4-22 parallel taxiway at Spartanburg Downtown Memorial Airport and to rehabilitate the runway edge lighting; $154,000 to acquire land for runway 9 clear zone at Charleston Executive Airport and $65,447 to reconstruct a portion of the old World War II drainage system at Walterboro Airport.

For the Air Carrier airports, more than $1.2 million has been allocated to Columbia Metro for paving runway 5-23, rehabilitating taxiway "F" and installing medium intensity runway and taxiway lights.

At Charleston, $881,012 has been allocated to pave the terminal apron for that new facility now under construction.

At Greenville-Spartanburg jetport, $425,290 has been allocated to expand and light the general aviation apron and to build and light a connecting taxiway.

Although state funds are still frozen, the Commission agreed, at its October meeting, to accept applications for state funds on a "no promise" basis from those airports which already have approved federal funding.

Jimmy Goff, assistant to the director for Planning and Development, said, "We will accept applications for those projects with approved federal funds and seek to free up the frozen state funds."

Normally, the state and local governments each fund five percent of the project cost, while the FAA grants cover 90 percent. ✈

WIND SHEAR

Increased research and experience show this

Several years ago, a crash like the one that occurred this summer to the Pan American jet taking off from New Orleans Airport might have been called "pilot error."

Everyone would shake their heads and go on as usual while the professional image of our airline pilots would suffer a bit more. Now, thanks to increased research and experience, we are more aware of the complex problem of wind shear.

What is wind shear? Wind shear is a change in wind speed and/or direction over a short distance. It can occur either horizontally or vertically and is most often associated with strong temperature inversions or density gradients. Wind shear can occur at high or low altitude. This article will discuss only low altitude wind shear. There are four common sources of low level wind shear: Frontal activity, thunderstroms, temperature inversions, and surface obstructions.

Frontal Wind Shear

Not all fronts have associated wind shear. In fact, shear is normally a problem only in those fronts with steep wind gradients. Like so many things in weather, there is no absolute rule, but there are a couple of clues: (1) The temperature difference across the front at the surface is 10° F (5°C) or more; and (2) the front is moving at a speed of at least 30 knots. You can get clues to the presence of wind shear during the weather briefing by checking these two factors. Ask the briefer, and if they are present, be prepared for the possibility of shear on aproach.

Thunderstorms

Wind shear is just one of the many unpleasant aspect of thunderstorms. The violence of these storms and their winds are well documented. The two worst problems outside actual storm penetration are shear related. These are the "first gust" and the "downburst." Most everyone has seen the rapid shift and increase in wind just before a thunderstorm hits. This is the first gust.

The gusty winds are associated with mature thunderstorms and are the result of large downdrafts striking the ground and spreading our horizontally. These winds can change direction by as much as 180 ° and reach velocities of 100 kts as far as 10 miles ahead of the storm. The gust wind speed may increase as much as 50 percent between the surface and 1,500 feet, with most of the increase occuring in the first 150 feet. The implications for a shear on approach in such a case are obvious.

The other wind problem mentioned earlier, "the downburst," is also downdraft related. It is an extremely intense localized downdraft from a thunderstorm. This downdraft exceeds 720 feet per minute vertical velocity at 300 feet AGL. The power of the downburst can actually exceed aircraft climb capabilities, not only those of light aircraft but even as is documented in one case, a high peformance Air Force jet.

The downburst is usually much closer to the thunderstorm than the first gust, but there is no absolutely reliable way to predict the occurrence One clue is the presence of dust clouds or roll clouds or intense rainfall. It would be best to avoid such areas.

Temperature Inversions

Pilots who have flown in the Southwest or in Southern California or Colorado are familiar with this weather pattern. Overnight cooling creates a temperature inversion a few hundred feet above the ground. This, coupled with high winds from what is known as the low level jet, can produce significant wind shears close to the ground.

One particularly bothersome aspect of temperature inversion shears is that as the inversion dissipates the shear plane and gusty winds move closer to the ground. In some areas of the Southwest a 90° change in direction and 20-30 knot increases in surface winds in a few minutes are not uncommon. Obviously, such a shift would made an approach difficult at best.

Suface Obstructions

Surface obstructions such as large hangars or other buildings near the runway can change wind velocity and seriously affect a landing. But pilots also need to be aware of the hazard posed by natural obstructions off the airport.

Some airfields are close to mountain ranges, and there are mountain passes close to the final approach paths. Strong surface winds blowing through these passes can cause serious localized wind shears during the approach. The real problem with such shears is that they are almost totally unpredictable in terms of magnitude of severity. A pilot can expect such shears whenever strong surface winds are present.

Types of Wind Shear

As noted, wind shear can be either horizontal or vertical. Although both components can affect an aircraft simultaneously, the vertical shear can have the most serious effect on an aircraft, particularly in departure and approach phases.

The change in velocity or direction can drastically alter lift, and airspeed and, in a matter of seconds, change a routine approach into an emergency recovery.

Suppose an aircraft is stabilized on an ILS approach and encounters a shear which results in a decreasing head wind. There will be a loss of airspeed and lift causing the aircraft to descend. The pilot must compensate for this loss of lift. The critical factor is whether there is sufficient altitude to complete a recovery.

As the aircraft passes through the shear level, airspeed and lift are lost. The aircraft starts to sink and drops below the glide path. The pilot sees this as a deviation and corrects with

unpredictable phenomonen in a new light

increased pitch and power. Very often, the correction is too large and the aircraft over shoots the desired airspeed and glide path, causing the pilot to compensate for the over correction.

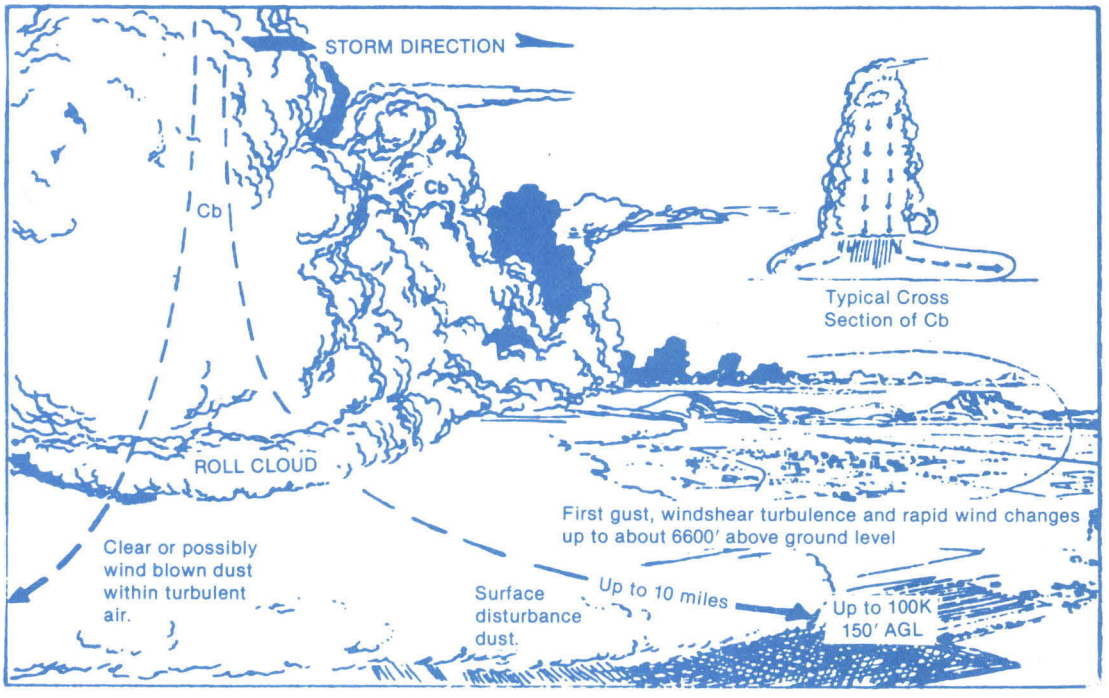
If there is sufficient altitude to correct, the pilot is able to land safely. However, if the shear is encountered low on the approach or if it is strong enough to overcome aircraft performance, recovery will not be possible and the aircraft will impact short of the runway.

A decreasing tail wind has the opposite effect. When the aircraft crosses the shear plane and loses the tail wind, lift increases and the aircraft climbs above the glide path. As in the head wind case, the pilots reaction can mean an overcorrection. The worst case here is the overcorrection leads to a transition to below glide path, but without enough altitude to correct. This is the classic high sink rate, hard landing.

The most hazardous form of wind shear is that encountered in thunderstorms. The severe, sudden wind changes can exceed the performance capabilities of many sophisticated aircraft. There have been numerous documented cases of aircraft mishaps directly related to encounters with thunderstorm wind shear.

The best way a pilot can cope with a shear is to: (1) Know it is there; (2) Know the magnitude of the change; and (3) Be prepared to correct or go around. ✈

First Gust Hazards

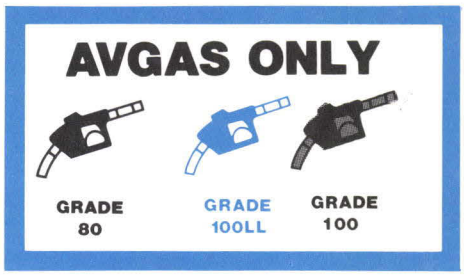


Cessna 172 control yoke may jam FAA says

The Columbia Flight Standards District Office (FSDO) has issued a memo to all pilot schools in the state advising them of the possible hazard with Cessna 172 control wheel yoke assemblies.

"NTSB Safety Recommendation A/82/95, issued August 18, 1982, focuses on the possibility of the control wheel yoke assembly becoming jammed in the full forward position during recovery from stall maneuvers in certain Cessna 172 series airplanes," the memo states.

"Cessna Information Letter SE-82/38 lists affected 172 aircraft that should be modified as specified in the letter. Operators of these aircraft are urged to have their maintenance facilities incorporate the modification as soon as possible." ✈



Decal helps prevent misfueling

A new system of color-coded decals for placement next to aircraft fuel filler ports has been developed to help reduce misfueling of piston-powered aircraft with jet fuel.

The decal project was spawned by several tragic accidents, one recently claiming the life of Virginia Aviation Commission chairman William L. Cooper after jet fuel was loaded into the tanks of a piston-engined aircraft.

GAMA president Edward W. Stimpson introduced the program by lauding the multitude of aviation interests cooperating in this project. "This is a joint effort with local, state and federal officials, fuel companies and several aviation associations banding together to help end these preventable misfueling accidents. With the further cooperation of pilots, aircraft owners, FBOs and fuel companies around the country, we can help protect every aircraft from the unnecessary danger of misfueling."

The decals, approximately 3-by-5 inches in size, are designed for placement next to aircraft fuel caps. A new FAA advisory circular describes decal use in relation to other required fuel markings on U.S. certificated aircraft.

International-standard color coding on the decals differentiates use of aviation gasoline (red border) and jet fuel (black border) with the legend "AVGAS ONLY" or "JET FUEL ONLY" in large type on the decals. Additional color coding and legends identify which avgas grades (80-red; 100-green; 100 Low Lead-blue) are acceptable for a particular piston aircraft.

Decals are made of pigmented polyester film tested for weather and sun exposure. Application is easy on clean wing surfaces in temperatures above 35° F. The decals are removable for aircraft painting or maintenance; the fuel decals will be standard on most new production aircraft in the future.

The campaign against misfueling will continue with the evolution of an entire system of preventative designs. Under development is companion color coding and marking of fuel pump nozzles to allow fuelers to match nozzle markings with decals on the aircraft. Also under development is a system of different nozzle spout sizes and fuel port restrictors similar to that used for U.S. autos burning unleaded automotive gas.

Currently, decals are available directly from GAMA at an introductory price of 75¢ per decal, $1.50 per pair, to cover the cost of printing, handling and postage. Send check or money order only (no cash) to: GAMA FUEL DECAL, 1025 Connecticut Avenue N.W., Suite 517, Washington, D.C. 20036. Specify type of decal (jet fuel only, avgas 100 and 100 Low Lead, or avgas 80, 100 or 100 Low Lead) and the number of decals desired. Allow four weeks for delivery. ✈

Arizona woman, St. Louis maintenance chief win honors

Gladys M. Morrison, chief flight instructor at North-Aire in Prescott, Arizona, has been named flight instructor of the year and James R. Saffley, vice-president of Technical Services for Midcoast Aviation Services has received this year's FAA/industry recognition as Aviation Mechanic of the Year.

Ms. Morrison became a flight instructor in 1965 and has logged some 10,000 of her 20,000 flight hours teaching students. She had previously owned and administered an approved flight school on the west coast for some twenty years and wrote the first flight school curriculum and training syllabus guidelines for veterans training to be approved by the California State Board of Education. Later, she was in charge of flight and ground school training for Beechcraft West in Van Nuys, California, while writing private, commercial, instrument and flight engineer training manuals for Fowler Aeronautical.

Mr. Saffley signed on with Remmert-Werner of St. Louis as a beginning mechanic in 1959 and progressed through the ranks to Facilities Service Manger for Rockwell International. He became a licensed A&P Technician in 1968 with inspection authority granted in 1978. Prior to his present position with Midcoast, he held manager and general manager positions in the technical service area there. Saffley has served as president of the Professional Aviation Maintenance Association for the past two years after serving as the organization's central region director beginning in 1978.

Ms. Morrison and Mr. Soffley were selected from hundreds of full-time flight instructors and aviation mechanics from around the country whose names were submitted to regional selection committees staffed by the FAA. The national selection for flight instructor of the year was made by representatives of the FAA and national aviation groups of Washington. The program is administered by the AOPA, Air Safety Foundation, Federal Aviation Administration, General Aviation Manufacturers Association and the National Business Aircraft Association. ✈

What is General Aviation

The following information was compiled by the Aircraft Owners and Pilots Association (AOPA). We reproduce it here because we think it is good information to know. Clip it out and save it. The next time you speak to someone about general aviation, it could prove a valuable aid to your position.

- General aviation is the largest air carrier in the world.
- General aviation carries approximately 120 million people intercity every year.
- General aviation transports more people than do 22 airlines combined.
- General aviation flies more miles (five billion) than do the airlines (three billion).
- General aviation makes more than 87 million flights every year. The airlines make about five million.
- General aviation makes 44% of the instrument approaches at towered airports. The airlines make 38%.
- General aviation has a fleet of airplanes totaling more than 211,000 (98%). The airline fleet totals 2,300.
- General aviation serves people from more than 15,000 airports in the United States. The air carriers operate at approximately 450.
- General aviation conducts more operations than do the air carriers at five of the top 10 and 79 of the top 100 busiest airports in the United States.
- The sky is not crowded. All of the airplanes in the United States could be in the air at the same time, at the same altitude over the state of Nevada and each would have more than one-half square mile of airspace around it.
- General aviation uses only approximately 10% of all aviation fuel consumed in the United States. ✈

Piedmont Airlines Boeing 737 Pacemaker, the twin-engine, 112 passenger jet which will connect Columbia with Charlotte and 20 other cities in the Piedmont system.

Piedmont Airlines back in Columbia Market

Piedmont Airlines began twice daily service between Columbia and Charlotte Oct. 31, re-entering the Columbia market after an absence of more than two years.

Piedmont will have an 8 a.m. departure daily (Flight 252), arriving in Charlotte at 8:26 a.m. The flight continues to Baltimore/Washington International Airport, arriving at 9:55 a.m.

Piedmont will also provide a departure at 3:15 p.m. Flight 338 will arrive in Charlotte at 3:41 p.m., continuing to Raleigh/Durham and Newark International Airport, arriving at 6:39 p.m.

Southbound, Flight 327 will depart Boston at 11 a.m., arriving in Charlotte at 1:40 p.m. after a brief stop at Raleigh/Durham. The flight continues to Columbia, arriving at 2:41 p.m.

Piedmont will also provide a 6:40 p.m. departure (Flight 245) from Baltimore/Washington International Airport which will arrive in Columbia at 8:45 p.m. after a brief stop in Charlotte.

At Charlotte where Piedmont will have 97 departures a day on the October 31 schedule, quick connections can be made to and from Nashville, Boston, Baltimore/Washington International Airport, Charlottesville, Cincinnati, Washington D.C.'s National Airport, Newark, Greensboro/High Point/Winston-Salem, New York's LaGuardia Airport, Lynchburg, Memphis, Jacksonville, N.C., Chicago, Norfolk, Philadelphia, Pittsburgh, Richmond, and Roanoke.

Piedmont had served Columbia from June 25, 1962, until June 1, 1980. When Piedmont withdrew from the area, it had daily nonstop departures to Miami and Richmond.

"Piedmont's growth, particularly the addition of new destinations important to travelers in this area, has enable Piedmont to return to the Columbia area with far improved schedules and services," said Donald F. McGuire, staff vice president-public affairs, in announcing Piedmont's new schedules for Columbia.

"At Charlotte, our largest hub, we have grown dramatically since 1980 and now offer more flights daily than any other airline," McGuire said. ✈

Breakfast Club

The S.C. Breakfast Club held its annual meeting and election of officers in Orangeburg, Oct. 31.

Aviation, will be in building 1044 on the field.

Pilots can contact Donaldson Unicom on 123.0. The NDB is 338 and the localizer is 108.3.

This month, the only meeting scheduled is Nov. 14 at Donaldson Center. Breakfast, hosted by Atlantic

SOUTH CAROLINA
AERONAUTICS COMMISSION
P.O. Drawer 1987
Columbia, South Carolina 29202

Study Examines future Jobs in GA career fields

A new career planning resource for students by the General Aviation Manufacturers Association (GAMA) says career opportunities in engineering. mechanics and avionics repair look especially good in the long term.

Using data from a wide range of sources, the study looks beyond present employment cutbacks in general aviation production to manpower shortages in the late '80s and early 1990s among aeronautical engineers and avionics, airframe and powerplant technicians.

Dr. Richard Feller, the study's author and manager of human resources development for Rockwell International, says much of this shortage could occur because tallented individuals in these positions are no longer recruited solely by aviation concerns. "Skills such as these are highly adaptive to small appliance repair, computers and other electronics, energy and automotive repair areas."

Dr. Feller says that demographic changes also further complicate the outlook for skilled manufacturing and maintenance help. "In the future, there may be fewer students from which to find qualified graduates to fill industrial demand. Although the immediate employment picture shows a personnel surplus in several jobs examined in the study, this is a temporary situation created principally by the continued severe recession. The next decade will see shortages among avionics, engineering, and airframe and powerplant personnel."

Copies of the 141 page study, titled *An Operating and Strategic Manpower Analysis and Plan for the General Aviation Industry*, are available for $10.00 each by writing GAMA Manpower Study, 1025 Connecticut Avenue, N.W., Suite 517, Washington, D.C. 20036. ✈

Ultralights banned at Columbia

The Columbia Metropolitan Airport has issued a NOTAM prohibiting the operation of ultralight vehicles at the airport.

Federal regulations prohibit ultralights from operation in controlled airspace without prior authorization but some airports are banning them altogether to reduce the danger of mid-air collisions.

Ultralight Accident forms available

The EAA Ultralight Association has developed an accident/incident reporting form which it is distributing to ultralight pilots around the country.

The Association plans to compile and publish the results of the forms so that other pilots may learn from the combined experiences.

"For the last three years, we have been monitoring ultralight accidents and looking for trends which will assist us in further promoting the safety of this fast growing form of recreation," said Peter B. Strombom, executive vice president of the Association

"To date, we have received reports on nearly 200 incidents, some of which are of a minor nature and one or two rather more serious," he said. Later this year Strombom said the Association will publish a detailed summary of trends being established.

The South Carolina Aeronautics Commission supports the accident/incident reporting form and encourages ultralight pilots in the state to use it. Limited copies of the form are available from the Comission's offices, P.O. Drawer 1987, Columbia, SC 29205 or call 758-2766.

For larger quantities, write EAA Ultralight Association, P.O. Box 229, Hales Corner, Wisconsin 53130 or call (414) 425.4860. ✈